CLAIMS

1. A non-naturally occurring BAFF-R glycoprotein having a deletion in the extracellular domain which results in altered O-linked glycosylation pattern, wherein the BAFF-R glycoprotein retains the ability to bind to BAFF.

2. The BAFF-R glycoprotein of claim 1, having at least one O-linked glycan.

3. The BAFF-R glycoprotein of claim 1, wherein the O-linked glycan is attached on an amino acid that corresponds to threonine 18 or threonine 41 of SEQ ID NO:1.

4. The BAFF-R glycoprotein of claim 1, wherein the O-linked glycan is attached on an amino acid which corresponds to threonine 18, threonine 41, or serine 8 of SEQ ID NO:1.

5. The BAFF-R glycoprotein of claim 1, wherein BAFF-R glycoprotein is human.

6. The BAFF-R glycoprotein of claim 5, wherein the deletion is from amino acid 50 to amino acid 56 of SEQ ID NO:1.

7. The BAFF-R glycoprotein of claim 5, wherein the deletion is from amino acid 50 to amino acid 63 of SEQ ID NO:1.

8. The BAFF-R glycoprotein of claim 5, wherein the deletion is from amino acid 50 to amino acid 72 of SEQ ID NO:1.

9. The BAFF-R glycoprotein of claim 1, which comprises a polypeptide having an amino acid sequence substantially identical to SEQ ID NO:1 from amino acid 13 to amino acid 43.

10. The BAFF-R glycoprotein of claim 1, which comprises a polypeptide having an amino acid sequence substantially identical to SEQ ID NO:1 from amino acid 14 to amino acid 43.

11. The BAFF-R glycoprotein of claim 5, having at least two amino acid substitutions, wherein the substituted amino acid corresponds to amino acid positions 21 and 28 of SEQ ID NO:1.

12. The BAFF-R glycoprotein of claim 1, which comprises a polypeptide having an amino acid sequence:

(a) from amino acid 13 to amino acid 43 of SEQ ID NO:1;

(b) from amino acid 14 to amino acid 43 of SEQ ID NO:1;

(c) from amino acid 1 to amino acid 49 of SEQ ID NO:1;

(d) from amino acid 8 to amino acid 49 of SEQ ID NO:1;

(e) from amino acid 13 to amino acid 49 of SEQ ID NO:1;

(f) from amino acid 14 to amino acid 49 of SEQ ID NO:1; or

(g) from amino acid 1 to amino acid 49 of SEQ ID NO:7.

13. The BAFF-R glycoprotein of claim 12, which comprises a polypeptide having an amino acid sequence as set out from amino acid 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, or 19 of SEQ ID NO:1 and to amino acid 43, 44, 45, 46, 47, 48, or 49 of SEQ ID NO:1.

14. The BAFF-R glycoprotein of claim 12, wherein an amino acid at position 21 of SEQ ID NO:1 is valine and an amino acid at position 28 of SEQ ID NO:1 is leucine.

15. The BAFF-R glycoprotein of claim 12, wherein an amino acid at position 21 of SEQ ID NO:1 is asparagine and an amino acid at position 28 of SEQ ID NO:1 is proline.

16. The BAFF-R glycoprotein of claim 12, further comprising at least a portion of an immunoglobulin constant region, and optionally a linker joining the polypeptide to the portion of the immunoglobulin constant region, wherein the linker does not include amino acid 50 to 56 of SEQ ID NO:1.

17. The glycoprotein of claim 16, wherein the portion of the immunoglobulin is IgG1 or IgG4.

18. The glycoprotein of claim 17, wherein the portion of the immunoglobulin constant region comprises amino acids 3 to 227 of SEQ ID NO:4.

19. A nucleic acid encoding the BAFF-R glycoprotein of claim 1.

20. The nucleic acid of claim 19, comprising encoding at least:

(a) amino acid 13 to amino acid 43 of SEQ ID NO:1;

(b) amino acid 14 to amino acid 43 of SEQ ID NO:1

(c) amino acid 1 to amino acid 49 of SEQ ID NO:1;

(d) amino acid 8 to amino acid 49 of SEQ ID NO:1;

(e) amino acid 13 to amino acid 49 of SEQ ID NO:1;

(f) amino acid 14 to amino acid 49 of SEQ ID NO:1; or

(g) amino acid 1 to amino acid 49 of SEQ ID NO:7.

21. The nucleic acid of claim 19, comprising nucleotides 1 to 216 of SEQ ID NO:2 or 3.

22. A vector comprising the nucleic acid of any one of claims 19 to 21.

23. A host cell comprising the nucleic acid of any one of claims 19 to 21.

24. A method for producing the BAFF-R glycoprotein, the method comprising the steps of:

(a) transforming host cells with the vector of claim 22;

(b) culturing the host cells under conditions permitting production of the protein; and

(c) isolating the BAFF-R glycoprotein from the host cells.

25. A BAFF-R fusion polypeptide comprising: (a) a first polypeptide comprising an amino sequence substantially as set out from amino acid 13 to amino acid 43 or amino acids 14 to 43 of SEQ ID NO:1 fused to (b) a second amino acid sequence comprising at least a portion of an immunoglobulin constant region, and optionally (c) a linker joining the first and the second sequences, wherein the BAFF-R fusion polypeptide does not include amino acid 50 to amino acid 56 of SEQ ID NO:1.

26. The BAFF-R fusion polypeptide of claim 25, wherein the linker is proteinaceous.

27. The BAFF-R fusion polypeptide of claim 25, wherein the linker does not comprise amino acids 50 to 56 of SEQ ID NO:1.

28. The BAFF-R fusion polypeptide of claim 25, wherein the first polypeptide comprises an amino sequence from amino acid 8 to amino acid 49 of SEQ ID NO:1.

29. The BAFF-R fusion polypeptide of claim 25, which comprises an amino acid sequence substantially identical to SEQ ID NO:1 from amino acid 13 to amino acid 43.

30. The BAFF-R fusion polypeptide of claim 25, which comprises an amino acid sequence substantially identical to SEQ ID NO:1 from amino acid 14 to amino acid 43.

31. The BAFF-R fusion polypeptide of claim 25, having at least two amino acids substitutions, wherein the substituted amino acids correspond to amino acid positions 21 and 28 of SEQ ID NO:1.

32. The BAFF-R fusion polypeptide of claim 25, wherein the first polypeptide comprises an amino sequence:

(a) from amino acid 13 to amino acid 43 of SEQ ID NO:1;

(b) from amino acid 14 to amino acid 43 of SEQ ID NO:1;

(c) from amino acid 1 to amino acid 49 of SEQ ID NO:1;

(d) from amino acid 13 to amino acid 49 of SEQ ID NO:1;

(e) from amino acid 14 to amino acid 49 of SEQ ID NO:1; or

(f) from amino acid 1 to amino acid 49 of SEQ ID NO:7;

and the second polypeptide comprises amino acids 3 to 227 of SEQ ID NO:4.

33. The BAFF-R fusion polypeptide of claim 25, wherein the first polypeptide comprises amino acid 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, or 19 of SEQ ID NO:1 to amino acid 43, 44, 45, 46, 47, 48, or 49 of SEQ ID NO:1 fused to amino acids 3 to 227 of SEQ ID NO:4.

34. A nucleic acid encoding a BAFF-R fusion polypeptide of claim 25.

35. The nucleic acid of claim 34, comprising nucleotides encoding amino acids 1-227 of SEQ ID NO:4 fused to:

(a) from amino acid 13 to amino acid 43 of SEQ ID NO:1;

(b) from amino acid 14 to amino acid 43 of SEQ ID NO:1;

(c) from amino acid 1 to amino acid 49 of SEQ ID NO:1;

(d) from amino acid 13 to amino acid 49 of SEQ ID NO:1;

(e) from amino acid 14 to amino acid 49 of SEQ ID NO:1; or

(f) from amino acid 1 to amino acid 49 of SEQ ID NO:7;

36. The nucleic acid of claim 34, comprising (a) nucleotides 1 to 216 of SEQ ID NO:2 or SEQ ID NO:3 and (b) nucleotides 7 to 681 of SEQ ID NO:5.

37. A vector comprising the nucleic acids of any one of claims 33-35.

38. A host cell comprising the nucleic acid of any one of claims 33-35.

39. A pharmaceutical composition comprising the BAFF-R glycoprotein of claim 1.

40. A pharmaceutical composition comprising the BAFF-R fusion polypeptide of claim 25.

41. A pharmaceutical composition comprising the nucleic acid of claim 19.

42. A method for treating an immunological disorder comprising administering a therapeutically effective amount of the pharmaceutical composition as in any one of claims 39-41 to a patient in need of treatment, thereby treating the immunological disorder.

43. A method for treating an immunological disorder comprising administering a therapeutically effective amount of the pharmaceutical composition as in any one of claims 39-41 to a patient in need of treatment, thereby treating the immunological disorder.

44. The BAFF-R glycoprotein of claim 1, having an apparent affinity for BAFF in the nanomolar range.

45. The BAFF-R fusion polypeptide of claim 25, having an apparent affinity for BAFF of at least 10^9 M^{-1}.

46. A BAFF-R polypeptide comprising amino acids 14 to 56 of SEQ ID NO:1 having mutations at amino acids 50, 51, and 56 of SEQ ID NO:1, wherein amino acids 50 is not serine or threonine, amino acid 51 is not serine or threonine, and amino acid 56 is not serine or threonine.

47. The BAFF-R polypeptide of claim 46, further comprising amino acids 14 to 63 of SEQ ID NO:1 and having a mutation at amino acid 63 of SEQ ID NO:1 wherein amino acid 63 is not serine or threonine.